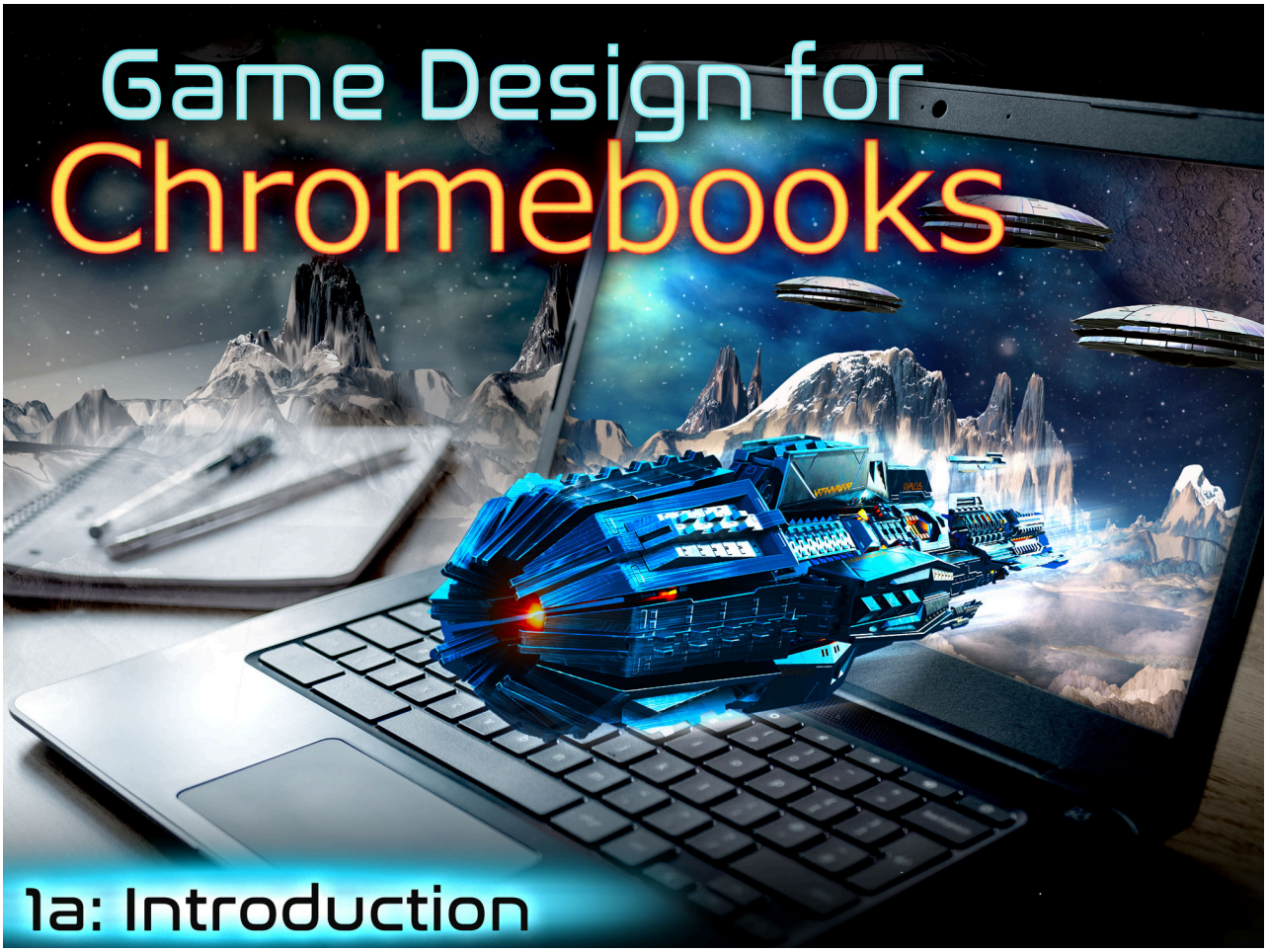
Course **Syllabus**

What you will learn in this course



Game Design for Chromebooks 1a: Introduction

Are you ready to take your passion for game design and turn it into a real-life prototype? In this course, you'll learn the fundamentals of game design including scripting in JavaScript, game mechanics, audio editing, storytelling, and game world development. And the best part? You'll apply these skills to build an arcade-style galactic adventure game using PlayCanvas! Let's get ready to blast off into the world of game design!

Unit 1: What Makes a Game?

Most of us have grown up playing some sort of game, and games existed long before modern technology and video games, so how exactly do we define a game? In this first unit, we'll delve into not only the parts and rules that make up a game but also the science and theory of what makes a game "fun." We'll then start building a knowledge base of common game design terms and vocabulary to prepare us for the content and genres we'll be working with moving forward.

Finally, we'll get into the nitty-gritty and set up our account and first project in a fully 3D game engine powered by JavaScript programming.

What will you learn in this unit?

1. Identify the first electronic and non-electronic games on historical record
2. Discuss the general history of video gaming by identifying console and controller updates by decade
3. List the different components that make up a video game and explain how they contribute to the game's fun
4. Compare and contrast various game creation tools and game engines
5. Get started using the PlayCanvas game engine and navigating the workspace

UNIT 1 Assignments

Assignment	Type
Unit 1 Critical Thinking Questions	Homework
Unit 1 Activity 1	Homework
Unit 1 Activity 2	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

Unit 2: Setting the Scene

In order to get going on your game creation, you need to know what's available to work with in PlayCanvas and how to document your great game ideas so that others can help you out! We'll take a closer look at the standard objects in PlayCanvas to see how things like lighting and sound will influence the feel of your game. We'll practice adding and editing object components to observe interactions. Then we'll move on to discussing ways to make your game sticky so that players will keep coming back for more. Once you've got a grasp of those concepts, we'll turn to industry-standard documents that are used to promote, market, and iterate upon ideas for your game's design and mechanics.

What will you learn in this unit?

1. Identify PlayCanvas object types and their uses
2. Edit components and scripts attached to actors in your game scene
3. Build a knowledge base of common game design mechanics and gameplay loops
4. Apply personal experience to create a mind-map of a unique game concept

UNIT 2 Assignments

Assignment	Type
Unit 2 Critical Thinking Questions	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

Unit 3: Working in Game Development

So far, we've tackled the game engine that helps us put all of our ideas and media assets together. However, not everyone on a game development team works in the engine directly. As a team develops a game through its lifecycle, there are many contributing roles, each lending their expertise to the product. From audio engineers to animators, many viable and exciting careers are part of game design. Wouldn't you like to take a look at what these careers are all about and which ones are the best fit for you?

What will you learn in this unit?

1. Identify the stages of the development lifecycle and explain how the cycle is iterative
2. Describe the roles on a game development team, including what they do and what experience is required to land that role
3. Design and create industry-standard game design documents
4. Apply physics forces to game objects to simulate real-world interactions

UNIT 3 Assignments

Assignment	Type
Unit 3 Critical Thinking Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Activity 3	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

Unit 4: Game Types and Tools

When we describe games to other people, we are usually quick to identify common aspects of a game that the player might recognize, such as its perspective, genre, and style: "Hey, have you played that new game? It's a third-person adventure game that takes place in the middle of a massive open-world desert map!" These categories help gamers conceptualize the game being discussed. Similarly, game designers might reference the latest feature in a 2D sprite editor or 3D animation tool to a fellow artist. If statements like this leave you hanging—third-person? open-world? sprite editors?—well, dive right in! We'll cover how to better identify games by these characteristics, and if you are just starting your game design career, we'll see how these characteristics can also help you come up with new ideas and concepts. We'll also be trying out a few different asset creation tools and get set up for our main game design project in the course! Let's go!

What will you learn in this unit?

1. Compare and contrast bitmap and vector graphics and their uses
2. Identify 3D modeling and audio editing tools used in game design
3. Import and organize assets into a new game project, identifying asset use by its file type
4. Compare and contrast the various game perspectives used in classic and modern games
5. Characterize game genres by their salient features
6. Describe the different design styles and starting points in development

UNIT 4 Assignments

Assignment	Type
Unit 4 Critical Thinking Questions	Homework
Unit 4 Activity 1	Homework
Unit 4 Activity 2	Homework
Unit 4 Activity 3	Homework
Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

Game Design for Chromebooks Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the **first** half of the course (Note: You will be able to open this exam only one time.)

MIDTERM Assignments

Assignment	Type
Midterm Exam	Exam
Midterm Discussion	Discussion

Unit 5: Tell a Captivating Story

A game's story can be the difference between a memorable experience and just another game on the shelf. But don't stress over having to come up with an entirely original blockbuster story; you don't have to do it on your own. There are plenty of tools to help you, such as Freytag's Pyramid, a story template that has been used in books, movies, and games for decades! Once we've gone over some of the basics for our storyline, we'll move on to the game itself and start putting together our player ship template, including movement, custom particle systems, and much more.

What will you learn in this unit?

1. Explain how stories are conceptualized and created
2. Identify the key stages of Freytag's Pyramid and the structure of stories
3. Describe the use of conditionals, scripted events, and loops in JavaScript as applied to game design
4. Prototype a controllable game object with custom particle systems and cameras attached to create our game perspective

UNIT 5 Assignments

Assignment	Type
Unit 5 Critical Thinking Questions	Homework
Unit 5 Activity 1	Homework
Unit 5 Activity 2	Homework
Unit 5 Activity 3	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

Unit 6: Audio, Music, and Character Design

In this unit you'll be learning about the importance of audio in game design, along with how it can affect a player's mood and experience, and even gameplay. We'll discuss the differences between various industry-standard audio formats as well as the types of components we can attach them to in our PlayCanvas projects. We'll then move on to do just that and create our laser projectiles with dynamic audio attached! Finally, we'll discuss character design and the importance of creating memorable and unique characters with purposeful design choices.

What will you learn in this unit?

1. Use technical terminology such as diegetic and non-diegetic audio to describe the different use cases for audio in a game
2. Describe the different audio considerations used to create an immersive game experience
3. Design a projectile system

4. Design randomized audio for your game
5. Explain what aspects of character development are important to game design, using professional terminology

UNIT 6 Assignments

Assignment	Type
Unit 6 Critical Thinking Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework
Unit 6 Activity 3	Homework
Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

Unit 7: Creating a Game World

Now that we've created individual components of our game, it's time to start piecing them together into something playable! We'll move our focus from our test scene to two new scenes in our game. First is the main menu, where we'll showcase our ship, character, and even a ground environment as we learn about design for your game's environment. We'll attach scripts to start our first level while giving the player an interesting starting point to your game. Next, we'll create the first level of the game, where we'll get to put together the actual gameplay elements. This level will include the player, enemies, and visual effects. Let's get started!

What will you learn in this unit?

1. Explain how to create a game title screen that enhances the user experience
2. Identify the considerations a game designer must make to use other intellectual property legally in their game
3. Customize a screen space to meet a game's needs
4. Make suggestions about which user interface elements in a HUD would be best for a game's needs
5. Program key game mechanics like collisions, events, and object states

UNIT 7 Assignments

Assignment	Type
Unit 7 Critical Thinking Questions	Homework
Unit 7 Activity 1	Homework
Unit 7 Activity 2	Homework
Unit 7 Activity 3	Homework
Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Quiz

Unit 8: Building Your First Prototype

We're moving towards our working prototype! With our gameplay elements and title screen in place, we can move on to creating our win and lose conditions and adding menu interactions, a level timer, and, of course, a credits screen to acknowledge everyone who worked on the game. As we close out this course, we'll go over the types of tasks and roles that project managers and those on game design teams will need to take into consideration when working on a game project. You'll learn time management techniques, complete technical documentation, and more. Finally, you'll learn how to package and deploy your prototype so others can play your game!

What will you learn in this unit?

1. Distinguish internal documents from external documents
2. Exhibit teamwork, time management, and intercommunication skills
3. Describe the elements required to reach the minimum viable product stage and review and finalize a working horizontal slice prototype of your game
4. Use and create testing documents to assess a game's progress and potential

UNIT 8 Assignments

Assignment	Type
Unit 8 Critical Thinking Questions	Homework
Unit 8 Activity 1	Homework
Unit 8 Activity 2	Homework
Unit 8 Activity 3	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

Course Title Final Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the **second** half of the course (Note: You will be able to open this exam only one time.)

FINAL Assignments

Assignment	Type
Final Exam	Exam
Class Reflection Discussion	Discussion